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Date: OCTOBER 26, 2004

To: EXAMINER KANG, D.
U.S. PATENT AND TRADEMARK OFFICE

Fax #: (703) 827-9318

From: FRANK C. NICHOLAS
Phone #: (847) 424-2521

Client/Matter No.: CML00635AT (9645/122)

of Pages: 13
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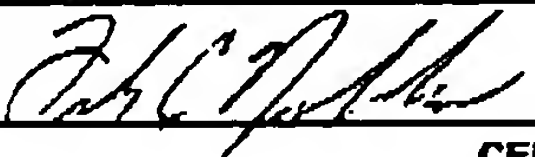
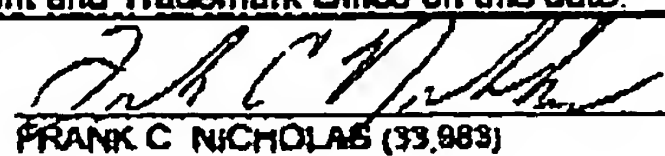
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<h1 style="text-align: center;">TRANSMITTAL FORM</h1> <p style="text-align: center;">(to be used for all correspondence after initial filing)</p>	Attorney Docket No.	CML00636AT (8845/122)
	Application Number	10/811,548
	Filing Date	JULY 1, 2003
	First Named Inventor	TIMOTHY B. DEAN
	Group Art Unit	2811
	Examiner	KANG, D

ENCLOSURES (check all that apply)		
<input checked="" type="checkbox"/> Response to Non Final Office Action Dated July 28, 2004 <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Status Letter <input type="checkbox"/> Extension of Time Request (duptic) <input type="checkbox"/> Express Abandonment Request <input type="checkbox"/> Information Disclosure Statement and PTO-1449 <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Response to Missing Parts/Incomplete Application	<input type="checkbox"/> Assignment Papers (for an Application) <input type="checkbox"/> Drawings <input type="checkbox"/> After Allowance Communication to Group <input type="checkbox"/> Petition Routing Slip (PTO/SB/68) and Accompanying Petition <input type="checkbox"/> To Convert a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation <input type="checkbox"/> Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Small Entry Statement <input type="checkbox"/> Request of Refund	<input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input type="checkbox"/> Appeal Communication to Group (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Post Card Receipt <input type="checkbox"/> Additional Enclosure(s) (please identify below) <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
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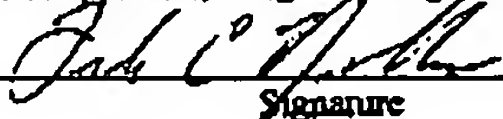
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Indep.		Minus		0	x \$44=	0		x \$88=	
First Presentation of Multiple Dep. Claim					+ \$160=	—		+ \$300=	
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SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT			
Firm or Individual name	FRANK C. NICHOLAS Registration No. 33,883 CARDINAL LAW GROUP 1603 Orrington Avenue, Suite 2000 Evanston, IL 60201		
Signature		Date	October 26, 2004
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Signature	 FRANK C. NICHOLAS (33,883)	Date	October 26, 2004

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PATENT
Case No.: CML00635AT
(9645/122)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of:

TIMOTHY B. DEAN, ET AL.

Serial No.: 10/611,546

Filed: JULY 1, 2003

Title: ACTIVATION PLATE FOR
ELECTROLESS AND IMMERSION
PLATING OF INTEGRATED CIRCUITS

)
)
) Examiner: Kang, D.
)
)
)

) Group Art Unit: 2811
)
)
)

RESPONSE TO NON-FINAL OFFICE ACTION DATED JULY 26, 2004

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22202-1450

Dear Sir:

In response to a Non-Final Office Action dated July 26, 2004, the Applicants
respond as follows:

October 25, 2004
Case No.: CML00635AT (9645/122)
Serial No.: 10/611,546
Filed: July 1, 2003
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INTRODUCTORY COMMENTS

The present amendment replies to an Office Action dated July 26, 2004. Claims 1-25 are currently pending in the present application. Examiner Kang rejected claims 17-25.

In the Office Action, Examiner Kang asserted the following actions to pending claims 17-25:

- A. Claims 17-25 were rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement
- B. Claims 17-23 and 25 were rejected under 35 U.S.C. § 102(a) as being anticipated by Ling et al (US 2002/0096765)
- C. Claims 17 and 24 were rejected under 35 U.S.C. § 102(b) as being anticipated by Takase et al (U.S. Patent No. 6,028,011)

The Applicants respectfully request reconsideration and further examination of the present application under 37 CFR § 1.112.

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CLAIM AMENDMENTS:

Please amend claim 17 such that after amendment a complete set of currently pending claims reads as follows:

1. (Original) A method of plating an integrated circuit, comprising:
positioning an activation plate adjacent to at least one integrated circuit,
the integrated circuit including a plurality of bond pads comprising a bond-pad metal, and
the activation plate comprising the bond-pad metal;
plating a layer of electroless nickel on the bond pads and the activation
plate; and
plating a layer of gold over the layer of electroless nickel on the bond pads
and the activation plate.
2. (Original) The method of claim 1 wherein the bond-pad metal comprises
copper.
3. (Original) The method of claim 1 wherein the bond-pad metal comprises
aluminum.
4. (Original) The method of claim 1 wherein the activation plate is
positioned a distance between 0.125 inches and 0.250 inches from the at least one
integrated circuit.
5. (Original) The method of claim 1 wherein the layer of electroless nickel is
plated to a thickness between 0.5 microns and 5.0 microns.
6. (Original) The method of claim 1 wherein the layer of gold is plated to a
thickness between 0.05 microns and 1.5 microns.

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7. (Original) The method of claim 1 wherein the layer of gold is plated using one of an immersion gold or an electroless gold.

8. (Original) The method of claim 1 wherein the at least one integrated circuit is contained on a semiconductor wafer.

9. (Original) The method of claim 1 wherein the at least one integrated circuit is mounted on a carrier substrate when the layer of electroless nickel is plated.

10. (Original) The method of claim 1 further comprising:
plating a layer of electroless palladium on the plurality of bond pads and the activation plate after plating the layer of electroless nickel and prior to plating the layer of gold.

11. (Original) The method of claim 10 wherein the layer of electroless palladium is plated to a thickness between 0.2 microns and 1.0 micron.

12. (Original) The method of claim 1 further comprising:
zincating the plurality of bond pads and the activation plate prior to plating the layer of electroless nickel, the bond-pad metal comprising aluminum.

13. (Original) A system for plating an integrated circuit, comprising:
means for positioning an activation plate adjacent to at least one integrated circuit, the integrated circuit including a plurality of bond pads comprising a bond-pad metal, and the activation plate comprising the bond-pad metal;
means for plating a layer of electroless nickel on the bond pads and the activation plate; and
means for plating a layer of gold over the layer of electroless nickel on the bond pads and the activation plate.

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14. (Original) The system of claim 13 wherein the activation plate is positioned a distance between 0.125 inches and 0.250 inches from the at least one integrated circuit.

15. (Original) The system of claim 13 further comprising:
means for plating a layer of electroless palladium on the bond pads and the activation plate after plating the layer of electroless nickel and prior to plating the layer of gold.

16. (Original) The system of claim 13 further comprising:
means for zincating the plurality of bond pads and the activation plate prior to plating the layer of electroless nickel, the bond-pad metal comprising aluminum.

17. (Currently Amended) An integrated circuit, comprising:
a plurality of bond pads comprising a bond-pad metal;
a layer of electroless nickel plated on the bond pads, wherein an activation plate ~~comprising the bond-pad metal~~ is positioned adjacent to the integrated circuit when the layer of electroless nickel is plated on the bond pads; and
a layer of gold plated over the layer of electroless nickel, wherein the activation plate is positioned adjacent to the integrated circuit when the layer of gold is plated on the nickel-plated bond pads.

18. (Original) The integrated circuit of claim 17 wherein the bond-pad metal comprises one of copper or aluminum.

19. (Original) The integrated circuit of claim 17 wherein the plated layer of gold comprises one of an electroless gold or an immersion gold.

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20. (Original) The integrated circuit of claim 17 wherein the layer of electroless nickel is plated to a thickness between 0.5 microns and 5.0 microns.
21. (Original) The integrated circuit of claim 17 wherein the layer of gold is plated to a thickness between 0.05 microns and 1.5 microns.
22. (Original) The integrated circuit of claim 17 further comprising:
a layer of electroless palladium positioned between the layer of electroless nickel and the layer of gold.
23. (Original) The integrated circuit of claim 22 wherein the layer of electroless palladium is plated to a thickness between 0.2 microns and 1.0 micron.
24. (Original) The integrated circuit of claim 17 further comprising:
a layer of zinc positioned between the bond pads and the layer of electroless nickel when the bond-pad metal comprises aluminum.
25. (Original) The integrated circuit of claim 17 wherein the integrated circuit with the plurality of bond pads is contained on a semiconductor wafer.

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-- REMARKS --

The present amendment replies to a Non-Final Office Action dated July 26, 2004. Claims 1-25 are currently pending in the present application. The Applicants thank the Examiner for the allowance of claims 1-16.

In the Non-Final Office Action, Examiner Kang rejected pending claims 17-25 on various grounds. The Applicants respond to each ground of rejection as subsequently recited herein, and respectfully request reconsideration and further examination of the present application under 37 CFR § 1.112:

- A. Claims 17-25 were rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement

The rejections of claims 17 – 25 under 35 U.S.C. §112 are respectfully traversed. Claim 17 has been amended to more clearly inferentially refer to the activation plate by deleting “comprising the bond pad metal. Claim 17 now clearly indicates that the activation plate (as shown, for example, in FIG. 3, number 340) is positioned adjacent the integrated circuit and is not claimed as an element of the integrated circuit. The withdrawal of rejection of claim 17 under 35 U.S.C. §112 is respectfully requested.

Claims 18-25 were rejected for depending off of rejected independent claim 17. Claim 17 has been amended as stated above. Therefore the withdrawal of the rejections of claims 18-25 under 35 U.S.C. §112 is respectfully requested.

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- B. Claims 17-23 and 25 were rejected under 35 U.S.C. § 102(a) as being anticipated by Ling et al (US 2002/0096765)

The rejection of claims 17-23 and 25 under 35 U.S.C. § 102(a) as being anticipated by Ling et al is respectfully traversed. As the Examiner has recognized, Ling et al does not teach positioning an activation plate adjacent to the integrated circuit when the electroless nickel is plated to the bond pads and when gold is plated to the nickel-plated bond pads. Withdrawal of the 35 U.S.C. § 102(a) rejection of claim 17 is respectfully requested.

Claims 18-23 and 25 depend directly or indirectly from independent claims 17. Therefore, dependent claims 18-23 and 25 include all of the elements and limitations of independent claim 17. It is therefore respectfully submitted by the Applicants that dependent claims 18-23 and 25 are allowable over Ling et al. for at least the same reasons as set forth above with respect to independent claim 17. Withdrawal of the rejection of dependent claims 18-23 and 25 under 35 U.S.C § 102(a) is requested.

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- C. Claims 17 and 24 were rejected under 35 U.S.C. § 102(b) as being anticipated by Takase et al (U.S. Patent No. 6,028,011)

The rejection of claims 17 and 24 under 35 U.S.C. § 102(b) as being anticipated by Takase et al is respectfully traversed. As the Examiner has recognized, Takase et al does not teach positioning an activation plate adjacent to the integrated circuit when the electroless nickel is plated to the bond pads and when gold is plated to the nickel-plated bond pads. Withdrawal of the 35 U.S.C. § 102(a) rejection of claim 17 is respectfully requested.

Claim 24 depends from independent claims 17. Therefore, dependent claim 24 includes all of the elements and limitations of independent claim 17. It is therefore respectfully submitted by the Applicants that dependent claim 24 is allowable over Takase et al. for at least the same reasons as set forth above with respect to independent claim 17. Withdrawal of the rejection of dependent claim 24 under 35 U.S.C § 102(b) is requested.

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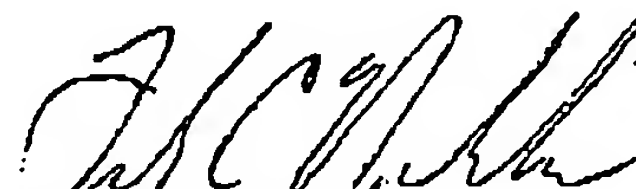
SUMMARY

The Applicants respectfully submit that claims 1-25 fully satisfy the requirements of 35 U.S.C. § 102, 103 and 112 and are in a condition for allowance. In view of the foregoing remarks, favorable consideration and passage to issue of the present application are respectfully requested.

Dated: October 26, 2004

Respectfully submitted,
Timothy B. Dean, *et al.*

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